Hello!
Who we are

Robin Champieux
Scholarly Communication Librarian, Oregon Health & Science University

Jennifer Doty
Research Data Librarian, Emory University

Christopher Eaker
Data Curation Librarian, University of Tennessee

Jackie Wirz
Research Data Ninja, Oregon Health & Science University
Today's Agenda

1. Research Life Cycle
2. Data Life Cycle
3. Introduction to the Gummy Bear Challenge
4. RDM Service Landscape
5. Case Studies

1. The Research Life Cycle
How does the library affect research?

Intersections across the research lifecycle

Expertise & services
- Traditional
- Emerging

Adapted from the University of Central Florida’s Research Lifecycle: http://library.ucf.edu/about/departments/scholarly-communication/
Planning Cycle

- Literature Review
- Citation Management Tools
- Data Management Plans

Adapted from the University of Central Florida’s Research Lifecycle:
http://library.ucf.edu/about/departments/scholarly-communication/

Data Management Plans

- Workshops
- Consultations & DMP Reviews
- DMPTool
Project Cycle

- Metadata and Data Documentation
- Data Analysis Support

Adapted from the University of Central Florida’s Research Lifecycle: http://library.ucf.edu/about/departments/scholarly-communication/
Metadata

- Metadata Standard Selection
- README Templates
Data Analysis Support

- Locating and Acquiring Datasets
- Specialized Software
Publication Cycle

- Where to Publish
- Author Rights/Licensing
- Public Access Compliance

Adapted from the University of Central Florida’s Research Lifecycle: http://library.ucf.edu/about/departments/scholarly-communication/
Public Access Compliance

◦ Funder Requirements
◦ Journal Policies
Digital Scholarship Cycle

- Institutional Repositories
- Data Sharing
- Data Archiving

Adapted from the University of Central Florida’s Research Lifecycle:
http://library.ucf.edu/about/departments/scholarly-communication/
Discovery and Dissemination

- Institutional Repositories
- Data Sharing
- Data Archiving
- Citation Metrics

2. The Data Life Cycle
Data Life Cycle

Plan
Integrate
Collect
Assure
Describe
Preserve
Analyze
Discover

Adapted from DataONE:
https://www.dataone.org/best-practices
Plan

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Data Life Cycle

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Adapted from DataONE:
https://www.dataone.org/best-practices
3. The Gummy Bear Challenge

Adapted from DataONE: https://www.dataone.org/best-practices
Gummy Bear

The Groundbreaking Paper
The Raw Data

http://libguides.ohsu.edu/gummybear/

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The Task

Create a figure and figure legend containing:

1) An annotated image of the belly button of a Gummy Bear.
2) Springiness by Gummy Bear color.

And

Create a methods section describing the experiment and analysis.
Examine the data lifecycle, and map how your work may or may not have followed the cycle.

Report Back
Send me your challenge results – wirzj@ohsu.edu
4. RDM Service Landscape

Categories of Service

- Education
- Consultation
- Infrastructure

Levels of Investment

- **Low**: Online resources
- **Medium**: One-off workshops
- **High**: Semester-long courses

**Category: Education**

Examples at Levels of Investment:
- **Low**: Online resources
- **Medium**: One-off workshops
- **High**: Semester-long courses
Category: Consultation

Examples at Levels of Investment

- **Low**: Review DMPs as requested
- **Medium**: Best practices workshops
- **High**: Written into a grant

Category: Infrastructure

Examples at Levels of Investment

- **Low**: DMPTool
- **Medium**: External data repositories
- **High**: In-house data repository
5. Case Studies

Researcher Education
Connecting to the community
Data Visualization

Looking good

Need: No existing resources
Impact: Overfilled class, all ranks
Future: Sustainable model, consultations
Data Viz – Levels of Service

- **Education**
  - Formal nanocourse
  - Sponsored Workshop

- **Consultation**
  - Student research projects
  - Healthcare Quality
  - Department overviews

- **Infrastructure**
  - Software

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Data Carpentry

2 day workshops for intense geekery
**Need:** No existing resources
**Impact:** Overfilled class, all ranks
**Future:** Collaborative expansion of model

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**Data Carpentry – Levels of Service**

**Education**
- Continued workshops
- Special interest groups
- Sponsored classes

**Consultation**
- How to establish a workshop
- Who to find on campus

**Infrastructure**
- In house instruction
Data Rigor & Reproducibility

Partnerships in education

Need: NIH requirements
Impact: Engaged researchers, faculty
Future: Integrated requirements
Rigorous Experimental Design & Transparency

Taking it to the Next Level

NIH Requirements – Levels of Service

**Education**
- Co-develop new classes
- Integrate into existing opportunities

**Consultation**
- Point of need consultations on relevant topics

**Infrastructure**
- In house instruction
- In house expertise
BD2K

NIH Education

Need: Big Data Trend
Impact: Diversify materials
Future: Focus scope and mission
BD2K – Levels of Engagement

Minimal
- Use online modules

Medium
- Take online or in-person courses as available

High
- Tailor OERs for your use
- Write BD2K grants at your institution

Data Literacy
Integration into Education Programs
Need: Incorporate data literacy
Impact: Ground-floor incorporation
Future: Deep integration of library

Data Literacy – Levels of Service

Education
- Integrate into current offerings
- Develop new workshops
- Develop new classes

Consultation
- Students / Researchers
- Administration

Infrastructure
- Integrate into curricula
- Integrate into policy
Case Studies in Research Education: Review

Data Viz
- Connect on what is fun, exciting and fresh
- Consult individually
- Convince them that RDM is important

Data Carpentry
- Dedicate time for data science
- Develop programming that fills needs
- Deploy new partnerships and models

NIH Requirements
- Be exciting – make compliance as engaging and carrot-like as possible
- Build partnerships on both faculty and student levels

BD2K
- Identify gaps
- Tailor to your needs
- Make awesomeness

Data Literacy
- Get involved at the ground level

The Policy Landscape
Helping researchers navigate & meet RDMS requirements
Increasingly, scholars & scientists must document and demonstrate...

How they will **describe** their data to facilitate discovery and reuse.

How they will **store** and secure their data.

How, where, and when they will **share** their data.

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It’s an environment of growing pressures and rewards

- **Funding**
- **Publication**
- **Impact**
All research data displayed in publications should be open, machine-readable, and digitally accessible to the public at the time of publication.

U.S. Department of Energy

28%
Journals analyzed explicitly require data sharing

90,100
The number of papers published by these journals in 2013

68%
Papers published by all journals in the data set
So, how might this look like from a service perspective?

**Education**
- Policies and standards web guides and alerts
- General and disciplinary focused workshops

**Consultation**
- DMP writing services and review
- Assisted Data Deposit
- Library FTE on grant budgets

**Infrastructure**
- DMPTool
- Institutional data repositories and archiving
- Integration with grant management systems
- Policy research & formation
Knowing your environment = Building the most relevant approach
Plan and Organize

Your research project will be easier to perform and your data will be easier to use if you have a clear strategy for collecting and storing your data. The OHSU Library offers services in the form of one-on-one consultations or small group training and workshops, and self guided data management solutions.

Data Management During the Research Lifecycle

http://www.ohsu.edu/xd/education/library/data/index.cfm

Data Repositories

The wild west of giving data a home
Infrastructure and personnel: things to consider

What **systems** will you need to facilitate storage & access?

**Who** will set up the repository, maintain it, and assist with deposit?

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Addressing unmet needs, building for reuse, & knowing what to open and keep

- What to accept
- Level of curation
- Access & Preservation
Thanks!
Any questions?

Robin Champieux
champieu@ohsu.edu
@rchampieux

Jennifer Doty
ennifer.doty@emory.edu
@jbdoty

Christopher Eaker
ceaker@utk.edu
@chris_eaker

Jackie Wirz
wirzi@ohsu.edu

Upcoming ALCTS CE Opportunities
http://www.ala.org/alcts/confevents

Webinars
◎ Using MoUs to Build Partnerships without Pressure – February 10
◎ Environmental Monitoring and Control – March 2
◎ Care and Handling of Books and Scrapbooks – March 9

Webcourses
◎ Fundamentals of Cataloging – February 1-March 11
◎ Fundamentals of Acquisitions – February 8-March 18
◎ Fundamentals of Electronic Resources Acquisitions – February 8-March 4

Monthly e-Forums